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ABSTRACT

After discussing the conclusions of a Congressional Budget Office study, which recommended that federal aid be redirected from colleges to secondary programs more directly related to job training, this paper examines the need to plan general and technical education within the framework of national productivity. The decreasing productivity rate of the United States is noted first, as is America's increasing trade deficit and the decline of the domestic auto industry. The exacerbation of these problems by the frequent inability of industry to find workers who are competent in both basic skills and modern job-related technologies is examined prior to a discussion of the need to decrease the time lag between the training needs of emerging industries and curricular offerings. The paper then discusses the growing technological nature of the workplace, noting studies which forecast an increased demand for technically trained workers, increasing competition for middle-level supervisory positions, and a growing number of underemployed college graduates demanding technical training at community colleges. The paper concludes with suggestions urging colleges to: (1) provide basic skills training which will enable semi-literate young workers to compete for entry positions; (2) provide technical retraining for older workers who have not achieved supervisory positions; and (3) form a partnership with industry to align the curriculum with needed job skills. (JP)

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GENERAL EDUCATION OR OCCUPATIONAL PROGRAMS:
ESSENTIAL, DESIRED, OR UNECESSARY.

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PAPER PRESENTED AT THE ANNUAL CONVENTION OF THE
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(61ST, WASHINGTON, DC, APRIL 20-22, 1981).

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PRESENTED TO
THE AMERICAN ASSOCIATION OF COMMUNITY AND JUNIOR COLLEGES
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TO START, LET ME SET A FRAME OF REFERENCE FOR MY REMARKS TODAY. THIS INTRIGUING SUMMARY FROM A CONGRESSIONAL BUDGET OFFICE STUDY CAME ACROSS MY DESK IN JANUARY OF THIS YEAR. IT'S CALLED "REDIRECTED FUNDING URGED TO IMPROVE PRODUCTIVITY."

"ACTIONS THAT COULD BE TAKEN BY THE FEDERAL GOVERNMENT TO IMPROVE THE QUALITY OF LABOR AND THUS BOOST PRODUCTIVITY SHOULD FOCUS ON JOB TRAINING AND ON SECONDARY EDUCATION, WITH PARTICULAR EMPHASIS ON HELPING WORKERS ADAPT TO ECONOMIC CHANGE. FURTHERMORE, THE STUDY CONCLUDES THAT THE EMPHASIS OF PRIOR YEARS ON SPENDING GREATER AND GREATER SUMS ON COLLEGE EDUCATION 'HAS PROBABLY REACHED THE POINT OF DIMINISHING RETURNS."

FURTHER IT STATES, "IT IS IMPORTANT FOR PRODUCTIVITY THAT LITERACY RATES BE HIGH, BUT THERE IS NO REASON TO SUPPOSE THAT COLLEGE-EDUCATED WORKERS MAKE BETTER PRODUCTION," ADDING THAT "PART OF FEDERAL SPENDING ON HIGHER EDUCATION SUPPORTS EDUCATION OF A KIND THAT DOESN'T CONTRIBUTE TO PRODUCTIVITY GROWTH." IT SUGGESTS THAT "GREATER GAINS IN PRODUCTIVITY.

COULD BE REALIZED IF MONEY CURRENTLY SPENT ON HIGHER EDUCATION WERE REDIRECTED TO TRAINING, IMPROVING THE QUALITY OF SECONDARY EDUCATION, AND SELECTIVE AREAS OF HIGHER EDUCATION."

THE STUDY SUGGESTS THAT GOVERNMENT PROGRAMS LIKE BASIC EDUCATION, OPPORTUNITY GRANTS, TRADE ADJUSTMENT ASSISTANCE, AND UNEMPLOYMENT INSURANCE COULD ALL BE DIRECTED AT EMPHASIZING WORK EXPERIENCE, RETRAINING, AND ATTACHMENT TO THE LABOR FORCE. ALSO, CBO POINTS OUT THAT MONTHLY UNEMPLOYMENT PAYMENTS MIGHT BE REPLACED WITH A LUMP SUM GRANT; IF A DISPLACED WORKER DID NOT FIND A JOB AFTER A SPECIFIED PERIOD, REDUCED MONTHLY PAYMENTS MIGHT THEN BEGIN. THE LUMP SUM WOULD PROVIDE THE RESOURCES TO SEARCH OUT OTHER JOB OPPORTUNITIES, EVEN IF THEY WERE IN DISTANT REGIONS.

ONE OF THE MAJOR POINTS OF THE STUDY IS THAT DEMOGRAPHIC FACTORS CURRENTLY WORKING AGAINST INCREASED PRODUCTIVITY -- RAPID LABOR FORCE GROWTH THAT DECREASES THE CAPITAL LABOR RATIO AND THE INFLUX OF YOUNG MALE AND FEMALE WORKERS REDUCES THE AVERAGE EXPERIENCE LEVEL OF AMERICAN WORKERS -- THEIR STUDY PROJECTS A TREND THAT WILL MOVE IN THE OTHER DIRECTION IN THE 1980's."

THAT'S PART OF THE FRAME OF REFERENCE FOR TODAY'S REMARKS - A NEW LOOK AT SECONDARY AND POST SECONDARY EDUCATION FROM A PERSPECTIVE OF NATIONAL PRODUCTIVITY. SO I RESEARCHED FURTHER. FOR THOSE OF US WHO ARE UNAWARE OF WORLD COMPETITION, LET ME RELATE THE FOLLOWING. LET'S TALK ABOUT JAPAN AND WEST GERMANY AS COMPARED TO THE UNITED STATES FOR A MOMENT. JAPAN'S PRODUCTIVITY GROWTH RATE HAS AVERAGED 7.8% AND WEST GERMANY'S ALMOST 5% FOR THE PAST 20 YEARS, WHILE OURS HAS AVERAGED ONLY 1.5%

MORE SPECIFICALLY, IN 1979, THE UNITED STATES' PRODUCTIVITY GROWTH RATE WAS MINUS 0.8%. IN 1980, IT APPEARS THAT IT WILL BE MINUS 3% -- A DECLINING PRODUCTIVITY RATE IN THE PAST TWO YEARS.

IN 1979 OUR BALANCE OF PAYMENTS WAS \$18.3 BILLION IN THE RED. FOR THE FIRST HALF OF 1980, WE WERE \$12 BILLION IN THE RED. OIL IMPORTS GENERALLY GET BLAMED FOR THESE DEFICITS. BUT JAPAN AND WEST GERMANY IMPORT ALL OF THEIR OIL, AND YET THEY HAVE A STRONG SURPLUS OF EXPORTS OVER IMPORTS. WHY ARE THEY SO DIFFERENT? WE'RE LOSING OUR MARKETS OVERSEAS, AND AT HOME, BECAUSE WE ARE FAILING TO PUT OUT ENOUGH HIGH QUALITY PRODUCTS AT COMPETITIVE PRICING.

FOREIGN NATIONS ARE NOW SETTING WORLD QUALITY STANDARDS -- NOT OUR COUNTRY. JAPAN IS THE QUALITY LEADER TODAY. I THINK MOST OF US ARE AWARE OF JAPAN'S EDUCATIONAL DEMANDS ON THEIR STUDENTS AND THE HIGH STANDARDS REQUIRED.

LET'S LOOK DEEPER INTO A MAJOR INDUSTRY WHICH HAS BEEN WELL PUBLICIZED, THE AUTOMOBILE INDUSTRY...LET'S MAKE SOME COMPARISONS OF WHAT DATSUN, TOYOTA AND HONDA HAVE DONE TO OUR AUTOMOBILE INDUSTRY.

WE PIONEERED THE AUTOMOBILE INDUSTRY AND HAD A HAMMER LOCK ON IT UNTIL A FEW YEARS AGO. NOW LOOK AT IT. IN 1980 JAPAN PRODUCED MORE AUTOMOBILES AND MORE TRUCKS THAN WE DID. IN THE PAST TEN YEARS, THEIR SHARE OF THE U.S. MARKET HAS JUMPED FROM TWO TO TWENTY-SEVEN PERCENT.

NOW WHY THIS LOSS? THERE ARE MANY REASONS, BUT THE ONE THAT IS RELEVANT TO YOUR GROUP AND TO THE AEROSPACE INDUSTRY IS JUST ONE SUBJECT I WANT TO PURSUE WITH YOU TODAY. THAT IS: LACK OF QUALIFIED, LITERATE WORKERS. AT THIS POINT I WANT YOU TO ASK YOURSELF AS I CONTINUE, WHAT IS THE NECESSITY FOR GENERAL EDUCATION? IS IT ESSENTIAL, DESIRED OR NECESSARY TO SUCCEED IN BUSINESS OR INDUSTRY?

PLACING THE NATIONAL PRODUCTIVITY DILEMA IN THE CONTEXT OF "WHETHER GENERAL EDUCATION OR OCCUPATIONAL EDUCATION," IS AN IMPORTANT CONSIDERATION BECAUSE WE IN THE UNITED STATES ARE MOVING TOWARDS A CRISIS IN THE MID 80'S. LET ME DEVELOP THIS FURTHER WITH MORE SPECIFICS. MANY PEOPLE IN BOTH BUSINESS AND INDUSTRY ARE DULY CONCERNED ALONG THESE LINES. LET ME TELL YOU WHAT I AM HEARING.

- POORLY EDUCATED WORKERS IS THE NUMBER ONE PROBLEM THAT KEEPS COMPANIES FROM EXPANDING OR BECOMING MORE PRODUCTIVE.
- A KNOWLEDGE GAP IS OCCURRING JUST WHEN THE NEED FOR HIGHLY KNOWLEDGEABLE WORKERS IS GROWING RAPIDLY.
- AUTOMATION IS STARTING TO ELIMINATE MANY UNSKILLED JOBS BOTH IN THE FACTORIES AND SOON IN THE OFFICE.
- WHY, PAGE AFTER PAGE OF JOBS GOING UNFILLED -- LOOK AT YOUR NEWSPAPER -- WE HAVE A BIDDING WAR GOING FOR QUALIFIED WORKERS.
- SO MANY YOUNG PEOPLE DON'T EVEN HAVE THE BASIC SKILLS THEY NEED TO COPE WITH JOBS AVAILABLE NOW IN INDUSTRY AND BUSINESS. WE DON'T MEAN TECHNICAL SKILLS, WE MEAN READING, WRITING, AND BASIC ARITHMETIC.

HOW WILL THE NEW WORKERS LEARN THE TECHNOLOGIES AND OPERATE OR MAINTAIN NEW EQUIPMENT IF THEY CAN'T READ, COUNT,

WRITE, OR ARTICULATE INFORMATION THEY HAVE GATHERED. YOU, THE POST SECONDARY EDUCATORS (THE LINK) AND WE IN INDUSTRY (THE USERS) BOTH HAVE A PROBLEM.

ACCORDING TO A CONFERENCE BOARD STUDY ON EDUCATION IN INDUSTRY, 35% OF 800 COMPANIES SURVEYED SAID THEY PROVIDED SOME INSTRUCTION THAT IS "REALLY THE RESPONSIBILITY OF THE SCHOOLS."

NOT ONLY THAT, I UNDERSTAND A FEW NEW PRIVATELY-OWNED COMPANIES ARE POPPING UP AROUND THE COUNTRY THAT TEACH REMEDIAL READING AND BASIC MATHEMATICS FOR EMPLOYEES OF COMPANIES.

COMPANIES ARE HAVING INSTRUCTORS TEACH REMEDICAL COURSES. THIS TAKES LONGER FOR NEW EMPLOYEES TO BECOME PRODUCTIVE. THEY LEARN, BUT WE ALL PAY THE PRICE IN PRODUCTIVITY WHILE THEY ARE LEARNING IN INDUSTRY. THESE ARE ONLY STOPGAP MEASURES...LET ME CONTINUE...

LET ME GIVE YOU TWO SPECIFICS. THE FIRST HAS TO DO WITH GENERAL MOTORS. ACCORDING TO THE JANUARY 22, 1981 WALL STREET JOURNAL, THIS COMPANY IS WORKING WITH THE DETROIT PUBLIC SCHOOL SYSTEM TO MAKE STUDENTS "MORE EMPLOYABLE." BUT THEY ARE PLANNING ALSO TO USE MORE ROBOTS IN THEIR FACTORIES IN FUTURE YEARS. AN OFFICIAL IS QUOTED AS SAYING, "THERE IS NO QUESTION THAT ROBOTS WILL ELIMINATE SOME UNSKILLED JOBS." G.M., WHICH EMPLOYS ONE SKILLED WORKER FOR EVERY 5.6

ASSEMBLY LINE WORKERS, MAY NEED A ONE-TO-ONE RATIO BY THE YEAR 2000. THAT SHOULD BE A WARNING TO SCHOOLS -- THAT STUDENTS ARE GOING TO HAVE TO BE BETTER EDUCATED TO GET JOBS. THE QUESTION, WE SHOULD ASK, IS "WHAT DO THESE CONCERNS MEAN TO OCCUPATIONAL EDUCATION AND YOUR INSTITUTIONS FOR THE 80's?"

TODAY, AS YOU KNOW, AVERAGE SCORES ON SCHOLASTIC APTITUDE TESTS, TAKEN BY COLLEGE-BOUND STUDENTS, HAVE DECLINED STEADILY SINCE 1967. AND RECENT MATH TESTS CONDUCTED BY A DENVER-BASED "NATIONAL ASSESSMENT OF EDUCATION PROGRESS" ORGANIZATION SHOWS THAT WHILE MOST HIGH SCHOOL STUDENTS CAN COMPUTE WHOLE NUMBERS, THEY HAVE SPECIAL DIFFICULTY WITH FRACTIONS; OVERALL, THEIR ABILITY TO SOLVE MATHEMATICAL PROBLEMS IS DECLINING.

SECONDARY SCHOOL EDUCATORS ARE DEFENSIVELY RESPONDING WITH A LITANY OF REASONS FOR STUDENTS' POOR PERFORMANCE -- LET ME BRIEFLY MENTION WHAT I HAVE READ:

- TEACHING MORE YOUNGSTERS THAN EVER BEFORE.
- DECLINING SCORES ON COLLEGE ENTRANCE EXAMS ONLY REFLECT THE FACT THAT MORE STUDENTS OF ALL ABILITIES ARE TAKING THE TEST.
- SCHOOLS ARE TRYING TO EDUCATE EVERYONE EQUALLY AND THEREBY DOING MANY A DISSERVICE.
- FAULT LIES OUTSIDE THE SCHOOLS -- DUE TO RISING DIVORCE RATES, LACK OF PARENTAL DISCIPLINE, TELEVISION CULTURE.

- AMERICANS EXPECT TOO MUCH FROM SCHOOLS AT TOO CHEAP A PRICE.
- SCHOOLS HAVE TO TEACH DRUG ABUSE, SEX EDUCATION, DRIVERS' EDUCATION, AND STILL TEACH THE BASICS WELL.
- DISINTEGRATING FAMILIES, LACK OF PARENTAL AND COMMUNITY SUPPORT OF THE SCHOOLS.

THE PROBLEMS FACING JUNIOR AND COMMUNITY COLLEGES ARE, IN MY JUDGMENT, NOT SO MUCH WITH A GENERAL EDUCATION OR OCCUPATIONAL EDUCATION, BUT WITH MISMATCHED CURRICULA TO THE OCCUPATIONAL NEEDS OF BUSINESS AND INDUSTRY. SO WHAT WILL BE POST SECONDARY'S CONTRIBUTION IN RESOLVING A GROWING CONCERN. THAT IS -- HOW CAN POST SECONDARY EDUCATION ASSIST THE SECONDARY SCHOOLS NOT ONLY TO PRODUCE STUDENTS WHO CAN READ, COUNT AND COMMUNICATE, BUT IN ADDITION PREPARE STUDENTS PROPERLY SO THEY CAN MOVE MORE RAPIDLY INTO THE WORK FORCE.

SECOND -- WITH THE RAPID GROWTH OF TECHNOLOGY NOW AND IN THE 80'S, AND THE CURRENT NATIONAL CONCERN FOR PRODUCTIVITY, I AM ASKING, "WHAT IS NEEDED FROM BUSINESS AND INDUSTRY AND FROM POST SECONDARY EDUCATION TO HELP ALL OF US COMPETE WITH OTHER COUNTRIES?" BECAUSE, JUST AS SURE AS I STAND BEFORE YOU, IT'S A CONCERN OF ALL OF US. TO START THE DIALOG, I HAVE ONE SUGGESTION THAT MAY HELP, NOT SO MUCH FROM EDUCATING THE SEMI-ILLITERATE WHICH IS IMPORTANT, BUT FOR HELPING YOU KEEP UP WITH THE RAPID TECHNOLOGY CHANGE OCCURRING IN BUSINESS AND INDUSTRY.

THE INFORMATION LAG BETWEEN WHAT IS TAUGHT IN COMMUNITY OR JUNIOR COLLEGES AND WHAT IS PRACTICED IN BUSINESS AND INDUSTRY NEEDS IMMEDIATE IMPROVEMENT. LET ME ILLUSTRATE THREE POINTS:

1. PROCEDURES ARE NOT GENERALLY ESTABLISHED FOR RAPID AND CONTINUOUS FEEDBACK FROM INDUSTRY TO COMMUNITY AND JUNIOR COLLEGES CONCERNING JOB PERFORMANCE SUCCESS OF GRADUATES.
2. IN MANY INSTANCES, OCCUPATIONAL CURRICULUM DEVELOPMENT IS BEING WALLED OFF FROM TECHNICAL CHANGES THAT ARE OCCURRING IN BUSINESS AND INDUSTRY DUE TO LACK OF INFORMATION FEEDBACK.
3. ADVISORY PANEL REPRESENTATIVES PROVIDE ONLY GENERAL, SUBJECTIVE AND JUDGMENTAL INFORMATION ON AN "AS REQUESTED" BASIS. CONSEQUENTLY, CURRICULUM PLANNERS ARE PROVIDING STUDENTS WITH KNOWLEDGE AND SKILLS MISMATCHED WITH REAL OCCUPATIONAL REQUIREMENTS.

THERE ARE NO EASY ANSWERS TO THIS CONCERN. CERTAINLY MUCH NEW THINKING MUST BE DEVOTED TO OCCUPATIONAL AND TECHNICAL PEDAGOGY, A REALM VISITED BY VERY FEW OF US FOR A GREAT MANY YEARS. PERHAPS THE TIME IS HERE FOR THE EDUCATIONAL COMMUNITY (WITH ITS OVERALL EXPERIENCE IN MATTERS OF TEACHING AND LEARNING) AND BUSINESS AND INDUSTRY (WHICH HAS THE OCCUPATIONAL INFORMATION) TO RE-EXAMINE OUR LONG-STANDING DISINTEREST TOWARD MUTUAL INVOLVEMENT IN SUCH QUESTIONS.

SUGGESTED IS AN EARLY WARNING FEEDBACK SYSTEM (FREELY CONTRIBUTED TO BY EMPLOYERS) THAT ADVISE YOUR INSTITUTIONS OF IMPENDING EMPLOYMENT SHIFTS, CHANGING OCCUPATIONAL REQUIREMENTS, AND NEED FOR NEW CATEGORIES OF WORKERS RESULTING FROM PLANNED PRODUCT CHANGES, MAJOR TECHNOLOGICAL INNOVATIONS, OR LONG RANGE EXPANSION. SUCH A SYSTEM COULD PROVIDE THE NECESSARY LEAD TIME FOR EACH OF YOUR INSTITUTIONS TO HAVE INFORMATION NECESSARY TO PLAN CURRICULA NOW FOR THE FUTURE AND JUSTIFY IN YOUR BUDGETING PROCESS. THAT'S A LONG TERM SUGGESTION WHICH NEEDS FURTHER DEVELOPMENT. THE SHORT TERM, WHAT DO YOU NEED FROM BUSINESS AND INDUSTRY TO CURE THE IMMEDIATE PROBLEMS OF (1) UNQUALIFIED, SEMI-ILLITERATE WORKERS (GENERAL EDUCATION) AND (2) MATCHING CURRICULA TO CURRENT TECHNICAL JOB REQUIREMENTS (TECHNICAL EDUCATION). FOR THE LATTER, TECHNOLOGY IS ESSENTIAL TO COMPANIES' GROWTH, BUT COMPANIES' GROWTH AND OUR NATION'S PROGRESS MAY BE INHIBITED WITHOUT QUALIFIED EMPLOYEES.

LET ME LIST FOR YOU SOME OF THE TECHNOLOGIES WE ARE TALKING ABOUT THAT ARE HERE OR WILL SOON START UP IN THE NEXT FEW YEARS.

FACTORY

1. GREATLY IMPROVED ACCURACY AND FINISHING IN MACHINERY
2. LASER WELDING
3. COMPUTER-AIDED DESIGN OF TOOLING AND PRODUCTS
4. HYDROSTATIC EXTRUSION OF METALS
5. CONSOLIDATION FORMING PROCESSES TO BUILD COMPONENTS FROM FIBERS, PARTICLES OR SMALL ELEMENTS

6. IMPROVED MACHINE TOOL CONTROLS
7. AUTOMATIC ASSEMBLY, ROBOTICS
8. ON-LINE AUTOMATION AND OPTIMIZATION OF
COMPLETE MANUFACTURING PLANTS, CONTROLLED
BY A CENTRAL COMPUTER

OFFICE

1. MULTIFUNCTION WORD PROCESSING WORK STATIONS
2. DESK TOP REAL TIME COMPUTERS
3. ELECTRONIC MAIL
4. VOICE, DATA, TEXT AND GRAPHICS EQUIPMENT FOR
INFORMATION MANAGEMENT AND FOR RAPID RETRIEVAL

THIS REAL TIME INFORMATION FEEDBACK SYSTEM I AM
SUGGESTING WILL BE VERY IMPORTANT AS WE LOOK TOWARDS THE
NEXT DECADE. TO PLACE THIS SYSTEM IN PERSPECTIVE LET'S SEE
WHAT OUR FUTURISTS SAY,

THE FUTURE I WILL RELATE TO YOU NOW IS TAKEN FROM
A 10 YEAR FORECAST PREPARED IN 1980 BY THE INSTITUTE FOR THE
FUTURE, MENLO PARK, CALIFORNIA. HERE IS WHAT THEY TELL US,

WHEN THE ENTRY LEVEL LABOR CRUNCH OCCURS IN THE 1980's, INDUSTRIES THAT EMPLOY LARGE NUMBERS OF SALES, SERVICE AND CLERICAL WORKERS WILL BE HARD HIT.

WHILE VIRTUALLY ALL OCCUPATIONAL CATEGORIES WILL EXPERIENCE REAL WAGE GAINS DURING THE LABOR CRUNCH, SOME WILL DO BETTER THAN OTHERS. THE FUTURISTS ESTIMATE THAT IN COMPARISON TO THE AVERAGE WORKER, PROFESSIONAL TECHNICAL WORKERS WILL GAIN SIGNIFICANTLY IN WAGES, WHILE CLERICAL, SALES AND SERVICE WORKERS WILL MAKE MODEST GAINS. WAGE RATES OF BLUE-COLLAR WORKERS WILL REMAIN STABLE, AND MANAGERIAL AND ADMINISTRATIVE WAGES WILL FALL DRAMATICALLY.

LET ME REPEAT, THE TOUGHEST HIRING CRUNCH WILL BE IN THE TECHNICAL AND PROFESSIONAL WORKER CATEGORIES. BUSINESS AND INDUSTRIAL DEMAND FOR SUCH WORKERS IS ALREADY VERY HIGH, AND THE INCREASING CONCENTRATION OF AMERICAN ECONOMIC ACTIVITY IN HIGH TECHNOLOGY WILL INTENSIFY DEMAND. RIGHT NOW, COMPANIES ARE RESPONDING. MANY ARE CURRENTLY OFFERING BOUNTIES FOR TECHNICAL EMPLOYEES, NOT FIVE YEARS FROM NOW, BUT NOW!

HERE IS A SHOCKING PROJECTION IF TRUE! WHILE NEW, YOUNG ENTRANTS WILL BE LOW IN QUANTITIES IN THE MID-1980's THERE WILL BE A RELATIVE ABUNDANCE OF OLDER, MORE EXPERIENCED WORKERS VYING FOR MIDDLE-LEVEL POSITIONS IN BUSINESS AND

INDUSTRIAL ORGANIZATIONS. AS THE FIRST OF THE BABY-BOOM AGE GROUP REACHES MIDDLE AGE AROUND 1985, COMPETITION FOR MIDDLE-LEVEL, NON-TECHNICAL POSITIONS WILL RISE DRAMATICALLY.

FOR EXAMPLE, IN THE 1960s APPROXIMATELY 10 WORKERS COMPETED FOR EACH MIDDLE-MANAGEMENT SUPERVISORY POSITION. BY THE END OF THE 1980s, THIS RATIO WILL INCREASE TO ABOUT 20 TO 1. MANY WORKERS IN THIS MIDDLE-AGE GROUP WILL BE FORCED TO ACCEPT JOBS WITH STATUS AND PAY SCALES BELOW THEIR EXPECTATIONS. DISCONTENT AMONG THESE OLDER, EXPERIENCED WORKERS IS LIKELY TO INCREASE AS THEY OBSERVE WAGES RISING FASTER FOR LOWER-SKILL POSITIONS. NOW COMPARE THIS WITH WHAT IS CURRENTLY GOING ON WITH THE UNQUALIFIED SEMI-LITERATES. THEY WILL BE PUSHED FARTHER OUT ON THE FRINGES OF EMPLOYMENT.

THE AGING OF THE BABY-BOOM CHILDREN IMPLIES SHORTAGES OF ENTRANTS IN THE WORK FORCE. THE OVERALL COMPOSITION OF THE LABOR FORCE WILL CHANGE, AND THE INTERESTS AND SKILLS OF AVAILABLE WORKERS MAY NOT MATCH UP WITH AVAILABLE JOBS.

BY 1985 THERE WILL BE A DECLINE IN THE NUMBER OF PEOPLE ENTERING THE WORK FORCE WHO ARE HIGH-SCHOOL DROPOUTS (21 PERCENT) OR HIGH SCHOOL GRADUATES WITH NO FURTHER TRAINING (23 PERCENT). BUT THE NUMBER OF ENTRANTS WITH SOME COLLEGE TRAINING WILL BE UP 6 PERCENT. THIS PORTENDS TO BE A GROWTH OF POPULATION IN 2 YEAR POST SECONDARY INSTITUTIONS.

WHAT THIS SAYS TO ME IS THAT BY 1985 UNDEREMPLOYMENT MAY BE A SERIOUS PROBLEM, WITH RECORD NUMBERS OF 4-YEAR COLLEGE-EDUCATED WORKERS WHO ARE NOT TECHNICALLY TRAINED HAVING DIFFICULTY FINDING EMPLOYMENT THAT REQUIRES THEIR SKILLS. THEY WILL HAVE TO RETURN FOR RETRAINING TO THE JUNIOR AND COMMUNITY COLLEGES FOR TECHNICAL TRAINING THAT FOUR YEAR INSTITUTIONS WILL NOT BE ABLE OR WANT TO PROVIDE. LET ME GIVE YOU ONE EXAMPLE -- I ATTENDED AN ENGINEERING EDUCATION CONFERENCE IN WASHINGTON IN DECEMBER, 1980 -- HERE IS WHAT THEY CONCLUDED.

AMERICAN COLLEGES AND UNIVERSITIES THAT OFFER ENGINEERING DEGREES ARE CURRENTLY OPERATING TO CAPACITY. WHY, LABORATORY AND SCIENTIFIC EQUIPMENT ON CAMPUS IS RAPIDLY BECOMING OBSOLESCEMENT. RETENTION OF ENGINEERING FACULTY IS BECOMING INCREASINGLY DIFFICULT. COLLEGES ARE TURNING AWAY LARGE NUMBERS OF APPLICANTS. ALL THIS IN THE FACE OF AN INCREASING ACCELERATED DEMAND BY INDUSTRY AND THE DEFENSE ESTABLISHMENT. THE 60,000 TO 70,000 ENGINEERS BEING GRADUATED EACH YEAR WILL NOT MEET DEMAND. HOWEVER, THERE IS A MOVEMENT TODAY TO USE MORE 2-YEAR TECHNOLOGY DEGREEED PEOPLE. THIS WILL ACCELERATE BECAUSE BY NECESSITY COMPANIES ARE DETERMINING THAT MANY ENGINEERING JOBS DO NOT REQUIRE GRADUATE ENGINEERS. TECHNICIANS, APPRENTICE ENGINEERS, ENGINEERING ASSISTANTS, PARA-PROFESSIONALS OR WHATEVER THEY ARE CALLED, CAN FILL MANY ENTRY ENGINEERING JOBS. THE DAYS OF ONLY GRADUATE ENGINEERS DOING TOTAL ENGINEERING JOBS HAS PEAKED DUE TO SHORTAGES. MUCH ENGINEERING WORK CAN BE DONE BY EMPLOYEES WITH LESS TECHNICAL TRAINING.

SOME CLOSING THOUGHTS. I KNOW YOU WILL HAVE MANY MORE.

WHAT CAN YOUR INSTITUTIONS DO NOW? FIRST, PREPARE THE SEMI-ILLITERATE YOUNG WORKERS IN THE BASICS WHICH WILL ENABLE THEM TO COMPETE FOR ENTRY TECHNICAL JOBS BY 1985, THEN CONTINUE THEIR GENERAL AND OCCUPATIONAL EDUCATION SO THEY CAN COMPETE WITH THE OLDER, BETTER QUALIFIED, BETTER EDUCATED WORKERS.

BY 1986 HAVE CURRICULA PREPARED THAT HELP THE MIDDLE-AGED WHO WILL BE UNDER-UTILIZED AND UNDER-EMPLOYED AND STARTING SECOND AND THIRD CAREERS. PROVIDE THEM ANOTHER SET OF SKILLS THAT PREPARE THEM TO WORK IN A MORE COMPLEX TECHNOLOGICAL WORLD.

THE TREND OF FEDERAL GOVERNMENT INTERVENTION IS NOW CHANGING AS WE ALL KNOW. ALL OF US HAVE TO FOLLOW CLOSELY, HOWEVER, WHAT IS HAPPENING IN WASHINGTON CONCERNING GRANTS AND FUNDING. ITS AFFECT ON TWO YEAR POST SECONDARY EDUCATION MAY BE DRAMATIC. NOTE WHAT I INDICATED EARLIER FROM THE CONGRESSIONAL BUDGET OFFICE STUDY.

THE FEEDBACK SYSTEM I INDICATED EARLIER WILL HELP YOU TO DO HTAT. DON'T LOOK TO THE FEDERAL GOVERNMENT TO HELP HERE. DO IT YOURSELVES IN CONJUNCTION WITH BUSINESS AND INDUSTRY. LEAD IN PULLING A PARTNERSHIP TOGETHER SOON. PLAN FOR THE RAPID TECHNOLOGY CHANGE AND SUBSEQUENT CURRICULA CHANGE IN YOUR BUDGETS. SOMEONE, MAYBE IN YOUR ASSOCIATION, SHOULD LEAD. WHAT DO YOU THINK? CAN WE ALL AFFORD NOT TO START NOW?

IN THE 1980's, CORPORATIONS WILL BE UNDER INCREASING PRESSURE TO IMPROVE PRODUCTIVITY AND MAINTAIN ACCEPTABLE PROFIT LEVELS. ALL THIS IN THE FACE OF GROWING INTERNATIONAL COMPETITION, HIGH RATES OF INFLATION, LIMITED AND COSTLIER NATURAL RESOURCES, AND HOPEFULLY LESS GOVERNMENT INTERVENTION. MANAGEMENT AND EDUCATION WILL BE UNDER FIRE AND WILL NEED TO REEXAMINE COSTLY LOW USE PROGRAMS IMPLEMENTED UNDER MORE FAVORABLE ECONOMIC CONDITIONS. THIS COULD WELL HAVE A DOMINO AFFECT IN STATE BUDGETS AND POST SECONDARY EDUCATIONAL INSTITUTIONS.

AT THE SAME TIME, CHANGES IN DEMOGRAPHIC PATTERNS, EXPLODING TECHNOLOGIES THAT ALTER JOB CONTENT, AND RISING EMPLOYEE EXPECTATIONS WILL CALL FOR NEW RESPONSES. BUSINESS WILL FACE IN THE 80'S NEW ECONOMIC, SOCIAL, LEGAL, AND TECHNOLOGICAL CHALLENGES WHICH WILL IMPACT STAFFING, COMPENSATION AND BENEFITS, PRODUCTIVITY/PERFORMANCE, MANAGEMENT, AND EMPLOYEE TRAINING AND DEVELOPMENT. POST SECONDARY EDUCATION, ESPECIALLY JUNIOR AND COMMUNITY COLLEGES I BELIEVE, WILL RECEIVE INCREASED PRESSURE FROM COMMUNITIES THEY SERVE FOR MORE CURRENT OCCUPATIONAL EDUCATION AND MUST START NOW IF THEY ARE TO PROVIDE QUALIFIED PEOPLE WHO ARE TRAINED TO USE OR MAINTAIN NEW TECHNOLOGY IN THE MID 80's.

IN SUMMARY, WE ARE TALKING OF DIFFERENT TARGET GROUPS. FOR THE YOUNG UNQUALIFIED SEMI-ILLITERATE, GENERAL EDUCATION IS A NECESSITY. SPECIFICALLY THE BASICS YES BY ALL MEANS, THE SECONDARY SCHOOLS ARE NOT DOING IT, WHATEVER THE REASONS. YOUR INSTITUTIONS MAY HAVE TO.

FOR THE LARGE NUMBER OF MIDDLE-AGED WORKERS WHO WILL BE UNDERUTILIZED IN 1985 AND BEYOND, GENERAL EDUCATION IN MY JUDGMENT WILL NOT BE NECESSARY. THEY WILL NEED ACCELERATED OCCUPATIONAL TRAINING TO QUALIFY THEM FOR THE NUMEROUS TECHNOLOGIES WHICH ARE COMING ON LINE. THEIR GENERAL EDUCATION HAS BEEN OBTAINED FROM EXPERIENCE IN LIVING IN THIS WORLD OF OURS.

FOR THE REST OF THE POPULATION WHO WILL ENTER THE WORLD OF WORK AND ENTER YOUR INSTITUTIONS CONTINUE USING YOUR OWN GOOD JUDGMENT, BUT CONSIDER WHETHER THE EARLY WARNING FEEDBACK SYSTEM I SUGGESTED EARLIER MIGHT NOT BE USEFUL IN YOUR PLANNING.

THIS MAY THEN REQUIRE PARALLEL CURRICULA OFFERINGS TO MEET THE EDUCATIONAL NEEDS OF THE FUTURE.

THANK YOU.